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Gender Differences in Job and Occupational Mobility in Varying Labour Market Conditions

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Abstract

This paper addresses two questions: Do changing labour market conditions affect job and occupational mobility over the life-course? Are there gender differences in the effects of labour market fluctuations? Demand-side theories of employers' recruitment practices and supply-side micro-economic theory of individuals' search for jobs are used to generate a set of hypotheses about how job and occupational mobility might be affected as labour market conditions fluctuate. We draw on longitudinal job and occupational history data from two British birth cohort studies originating in 1958 and 1970. Focusing on the early careers of individuals, fixed-effects models of job and occupational mobility are estimated. Labour market conditions are measured by the actual level of unemployment and the direction in which unemployment rates are moving. The probabilities of job and occupational mobility are significantly lower in economically depressed conditions than in more buoyant times, especially for individuals in lower level jobs. Also, the gender gap in occupational mobility chances, in upward mobility chances in particular, is widening as labour market conditions are deteriorating: women are hit more by weak labour markets than men. But this does not mean that men's mobility chances and risks are not affected by labour market conditions. For men, what appears to be particularly important is not the actual level of unemployment, but whether labour market conditions are improving or worsening.

Acknowledgements

Introduction

In a world where economic recessions are more severe, issues are brought to the research agenda which might otherwise lie dormant. This paper considers one such area of research by focusing on how the intra-generational job and occupational mobility of individuals are affected by fluctuating macro-level labour market conditions. Although the association between employment-unemployment transitions and changing labour market conditions is relatively well researched (e.g. OECD, 2008; Reinhart and Rogoff, 2008; Verick, 2009; Cahuc and Carcillo, 2011; Bell and Blanchflower, 2011), much less attention has been directed at examining the effects of changing macro-economic conditions on the employed, especially on their life-course job and occupational mobility. The few studies that addressed this issue found that occupational mobility tends to decline as labour market conditions worsen (Evans, 1999; Devereux, 2002; Buttner *et al.*, 2010; Barone *et al.*, 2011). However, research that considers gender differences in intra-generational job and occupational mobility is sparse. Where it exists, the main focus is on women's mobility around 'crucial' events, such as childbirth. Only a few studies gave systematic investigation to gender differences over a broader life-span (Jacobs, 1999; Booth and Francesconi, 2000; Bukodi and Dex, 2010).

In this paper we seek to break new ground in addressing two linked questions: Do changing labour market conditions affect job and occupational mobility during the life course? Are there gender differences in the effects of labour market fluctuations? In order to address these questions we draw on longitudinal job and occupational history data from two British birth cohort studies originating in 1958 and 1970. By job mobility we mean job changes; by occupational mobility we mean job changes that entail changes in occupation, either in an upward or downward direction. We focus on individuals' early careers when mobility is

thought to be greatest. The multivariate modelling techniques that we use allow us to control for time-constant but unobserved individual differences between men and women, and to filter out effects of long-term socio-economic trends, such as deindustrialisation over the three decades that our data cover.

In the rest of this paper we present, first, the main theoretical approaches and the hypotheses they generate about our research questions. We then describe our analytical strategy including the data and modelling approach, followed by our results and finally, the conclusions.

Previous research

We consider two main theoretical approaches to examining how individuals' job and occupational careers evolve. First, we focus on employers' recruitment behaviour (demand-side approach), second, on the micro-economic theory of individuals' search for jobs (supply-side approach). These are the basic processes through which workers are allocated to jobs and occupations.

The main hypothesis deriving from the demand-side approach is the so-called Reder hypothesis (Reder, 1955), on which Thurow (1975) subsequently built his job competition model. This hypothesis states that employers vary their hiring standards as labour market conditions fluctuate: "When applicants become scarce, employers tend to lower the minimum standards upon which they insist as a condition for hiring a worker to fill a particular job." (Reder, 1955: 834). This behaviour leads to an adjustment in the quality of the labour force at each job/occupational level rather than an adjustment of the wage levels, as neoclassical price

theory suggests would occur to clear the market.[1] In times when labour is scarce, employers are expected to lower their general 'skill' requirements[2] for their job vacancies. Such changes in employers' recruitment behaviour, therefore, are predicted to affect the average skill level in an occupation in a way that it declines as labour market conditions improve and increases as conditions worsen; in other words, moving in a counter-cyclical manner. Empirical studies have found evidence of this trend in the USA (Devereux, 2002) and, to a somewhat lesser extent, in Germany (Buttner *et al.,* 2010).

There are implications following from the Reder hypothesis for the association between varying labour market conditions and individuals' life-course job and occupational mobility. It is likely that chances of upward mobility increase when labour market conditions are improving (and decrease when they are worsening), chiefly because employers lower their job requirements in economically buoyant times. This means that workers with fewer endowments and lower levels of skill can make their way up more easily in 'good times' than they could do in 'bad times'. Devereux (2002) provides some evidence supporting this prediction for male workers in the USA.

We may get further insight into how changing labour market conditions influence job and occupational mobility by considering the empirical research on employers' behaviour and practices as fluctuations in labour market conditions take place. Surprisingly, there are only a few studies on employers' behaviour over the business cycle. Two small US studies on what employers do in recessions show that they hoard labour in the first instance – and, as Thurow argued, they do not lower the wage rates of existing employees, nor dismiss them in favour of

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[1] This is exactly the point Thurow used to devise his job competition theory: Individuals do not compete for wages, but for positions, or occupations; and employers do not vary wage rates in the short term in order to fill positions.

[2] By 'skills' we mean formal educational qualifications, past training and other occupation-specific skills and experience employers demand from applicants.

hiring cheaper workers because of fear of losing the goodwill of the workforce. Nor do they offer lower wage rates to new hires (Bewley, 1995; Fay and Medoff, 1985). Studies carried out following the 2008 recession in the UK have also found evidence of labour hoarding, alongside increases in the proportion of employees working part-time hours and decreases in real hourly pay (Crawford *et al.*, 2013; Bank of England, 2012; Field and Franklin, 2013). One implication of hoarding labour is that there will be less job-to-job and occupational mobility during recessions.

British studies also show that the predominant response of employers to deteriorating labour market conditions is to save costs (e.g. Geroski and Gregg, 1997). Cost control can mean employment cuts, wage cuts, and business unit closures. Making higher paid staff redundant saves more from the cost bill. Moreover, a clear-out of older, more experienced staff can also make way for new blood, offering upward career moves for more junior staff (Felstead *et al.*, 2011). There is the potential, therefore, to see increases in upward occupational mobility over a recession for existing, relatively young, staff – a prediction that is at odds with the Reder hypothesis.

We now consider possible gender differences, regarding the effects of fluctuating labour market conditions, from a demand-side perspective. As mentioned above, workers with lower skill levels, especially in the lower regions of the occupational hierarchy, may be particularly disadvantaged in recessions, as they are much less likely than their more skilled counterparts to improve their occupational positions. However, there might be gender differences in this pattern, for two reasons. First, because women are more likely than men to be found at the lower levels of the occupational hierarchy (see Bukodi and Dex, 2010); second, because women at lower occupational levels are less likely than those higher up to receive job-related training (Gallie and White, 1993). Gender differences in training opportunities might be

particularly relevant in recessions when employers could be more reluctant to give scarce training opportunities to women, as compared to men. The relative receipt and/or take-up of training opportunities for men and women by age and occupation have varied significantly in the UK over the past 30 years (Aston, *et al.*, 2004; Felstead *et al.*, 2007), and it is suggested that these variations are related to labour market fluctuations (Felstead *et al.*, 1999). This all may mean that women in general, and those at lower occupational levels in particular, are less likely than men to experience upward mobility. This implication may apply not only in labour market downturns but even when labour market conditions start improving. Devereux (2002) and Buttner and his associates (2010) provide some evidence supporting this prediction: They suggest a one per cent increase in the level of unemployment leads to a larger decrease in the probability of upward mobility for women than for men, both in the USA and Germany.

However, a different scenario is also possible. Certain economic sectors (e.g. construction or manufacturing) are often more severely affected by economic downturns than other sectors. These sectors are clearly male-dominated, and when recessions hit, employers in these sectors tend to cut their work force at a much greater rate than employers in other sectors (Verick, 2009; OECD, 2012). This may imply that men's job/occupational mobility chances and risks are more strongly related than those of women to labour market fluctuations. Also, a high proportion of employed women in Britain, at least until the recent past, were relatively protected in their public sector jobs. This may mean that, on average, women had lower risks than men of experiencing downward mobility in economic downturns. However, it is possible that the most recent recession differs in this respect (see Taylor-Gooby, 2012).

The second theoretical approach we consider, from the supply side, is job search theory (Pissarides, 1994). The main argument is that individuals search for jobs which fit best with

their preferences and their perceived skills, in circumstances when they have incomplete information about job opportunities and job search is costly. The process then involves spending time searching, seeking out job vacancies, going to interviews which will incur time, travel and possibly foregone earnings costs, etc. Whether or not it is worth continuing to search for a better job, and in turn to attain a more perfect person-job match, is assessed in terms of the costs of search relative to the likely benefits. Individuals are expected to invest more time and effort in searching when the match between their current jobs and their preferences and perceived skills is not satisfactory.[3] Poor person-job matches are more likely when individuals are young and inexperienced which leads to higher rates of job and occupation mobility being predicted for the young.

Labour market conditions can affect both the costs of search and the likely benefits. The costs of search go up in depressed conditions due to it taking longer to find suitable jobs. Similarly, the potential benefits of search decline as the probability of better job offers goes down, which means that individuals are more likely to accept poorer matches (Buttner *et al.*, 2010; Devereux, 2002). Also, individuals may place less emphasis on attaining a perfect person-job match when jobs are scarce, and instead focus more on remaining employed, possibly with fewer voluntary moves occurring, either between jobs or occupations (Moscarini and Vella, 2008). But the poorer person-job matches during economic downturns, leaving some over-qualified or under-employed, are likely to spur individuals to job and occupation mobility in future upturns, when conditions offer better employment prospects.

It is conceivable that these search processes work differently for women and men, mainly because women may differ from men in their preferences and constraints that in turn affect

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[3] A commonly held view among authors drawing on the job search theory is that 'occupation' is the most important characteristic of a job that best captures and represents individuals' (perceived) skills (e.g. Moscarini and Vella, 2008). Individuals therefore seek to attain an occupational position that best matches their skill endowments.

their job search behaviour and imply a greater willingness to accept poorer job matches. For instance, there is some evidence suggesting that British women, on average, prefer travelling shorter distances to work than men (Manning and Petrongolo, 2008); or rate convenient (part-time) working hours highly, and are even prepared to accept downward occupational moves – in order to be able to reconcile paid work with family obligations (Hakim, 2000; Dex and Bukodi, 2012). Such women may have lower chances of experiencing upward occupational mobility, even in buoyant labour markets, chiefly because they do not invest in skills such as formal qualifications or on-the-job training. Such skills are necessary for attaining jobs at high occupational levels. We may then predict that changing labour market conditions are unlikely to make significant differences to women's chances of job and occupational mobility. However, the proportion of women who are more committed to a successful job career is on the rise, and such women's labour market behaviour is likely to be more or less indistinguishable from that of men's. Varying labour market conditions may affect the job/occupational mobility chances of such 'career women', therefore, in pretty much the same way as they affect men's mobility patterns.

Testable hypotheses

Based on the previous literature reviewed above, we will test the following hypotheses.

H1: From both the demand-side and supply-side approaches, we expect that rates of job and occupational mobility are likely to be lower in economically depressed conditions than in more buoyant times. However, if workers change occupations in depressed conditions, they are more likely to move downward than upward.

H2: Again, from both the demand-side and supply-side approaches, we expect that the effects of changing economic and labour market conditions on mobility chances and risks are expected to differ by occupational level and employment hours. Workers at the bottom end of

the occupational hierarchy – or those in part-time jobs – are significantly less likely than their more advantaged counterparts to experience mobility, especially upward mobility, in depressed conditions than in buoyant times.

As regards the gender differences:

H3: From the demand-side approach, we expect women to be hit more severely than men by worsening economic and labour market conditions. We expect the predictions set out in Hypothesis 1 and 2, therefore, to be more pronounced for women than men.

From the supply-side approach, we do not have firm predictions about gender differences in the effects of changing economic and labour market conditions on job and occupational mobility.

Analytical strategy

Data

In order to test our hypotheses, we need to work with longitudinal micro-data for large samples of men and women. These data should have the following characteristics:

(1) they should contain sufficiently detailed information on the history of individuals' job and occupational changes;

(2) the job and occupational history data should be available over a reasonably long period of time, during which economic and labour market conditions varied;

(3) occupations should be coded to a single classification schema; and

(4) the data should contain a wealth of covariates that may affect job and occupational mobility.

Also, given that we wish to identify the relationships between occupational changes and period-level measures, it is necessary for the data to include more than one birth cohort.

For our purposes, we were able to construct a suitable dataset by combining two longitudinal birth cohort studies covering the early careers of British men and women born in 1958 (National Child Development Study [NCDS]) and 1970 (British Cohort Study [BCS70]). The NCDS comprises data on all children born in Great Britain in one week in March 1958, which were collected at birth and in further surveys at ages 7, 11, 16, 23, 33, 42, 46 and 50. The BCS70 relates to all children born in Great Britain in one week in April 1970, for whom data were collected at birth and six further sweeps at ages 6, 10, 16, 26, 30, 34 and 38. In both cases the original cohort comprised around 17 000 children. (For further information on these studies, see Ferri, Bynner and Wadsworth eds., 2003: Appendix 1).

Employment histories have been collected retrospectively at ages 23, 33, 42, 46 and 50 for the 1958 cohort, and at ages 30, 34, 38 and 42 for the 1970 cohort. The two work history data-sets include a continuous record of jobs that respondents had ever held, including the start and end dates of each job episode, the occupation in each job and whether cohort members were employed full time or part time. We transformed these data into person-month files, separately for the two cohorts. In the subsequent analyses we only consider jobs that were taken up between the age when respondents first left full-time education and age 34. Previous research clearly shows that much of the job and occupational changes that take place in individuals' careers occur early in their working lives (Sicherman and Galor, 1990; Evans, 1999; Moscarini and Vella, 2008). By around their mid-thirties most individuals attain the state of 'occupational maturity' (Bukodi and Goldthorpe, 2011).

Some of the job history data in the two studies were collected based on recall, in order to cover periods between the data collection contacts. However, the recall periods are relatively short, compared with the alternative data sources we considered[4]. Examination of the validity and reliability of work histories collected using recall suggests they are reasonably robust and reliable if recall periods are not excessively long (Dex, 1995; Dex and McCulloch, 1998). This paper's focus on individuals' early careers is beneficial in terms of minimising the likely measurement errors from the recalled job history data in the two birth cohorts, given the age at contact sweeps of data collection.

The job and occupational careers of individuals in our two cohorts evolved under varying labour market conditions. At the beginning of the 1980s Britain entered into a severe economic recession and a period of extensive 'deindustrialisation' and consequent re-structuring of the labour market. Unemployment rates rose rapidly and remained at double-digit levels from 1981 through to 1988. Individuals in the 1958 cohort met these adverse conditions in the early years of their working lives. Members of the 1970 cohort entered the labour market when unemployment rates were at their peak. However, after entry, the labour market conditions faced by the members of this cohort improved significantly.

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[4] For our purposes we considered the longitudinal population-based British Household Panel Study (BHPS) data set. The prospective data collection waves available to us when we were starting this project, covered annual data contacts from 1991 to 2006, over which there was significant attrition. The UK labour market in this period can be largely characterised as buoyant. These BHPS data alone, therefore, proved to be not ideal for analysing the effects of labour market fluctuations on individuals' job mobility. In BHPS retrospective employment histories were collected by recall in 2002 and in 2003. This means that for a non-negligible proportion of the sample the data on early careers might involve a recall period of up to 40 years. The data on early careers from older workers from this source are likely, therefore, to contain serious measurement error from recall.

Longhi and Brynin (2010), using BHPS data, note a further measurement error problem about recall data on occupations; that it is difficult to be sure when respondents in fact changed their occupation, as the codes which identify occupations can be inaccurate and prone to measurement error. These authors used a strategy to limit this problem which was only counting a change in an individual's occupation when changes in occupation codes were also associated with changes of job. We were able to adopt the same safeguard.

When defining job mobility, we decided to include only job-to-job transitions, i.e. transitions between two subsequent jobs without a gap of unemployment or inactivity of any kind. The dataset consists, therefore, of all job-to-job moves made by the men and women in our two cohorts up to age 34. We decided to focus on job-to-job transitions chiefly because our aim is to design the analyses in such a way as to make, as far as possible, like-with-like comparisons between women's and men's careers. Our previous analyses on the same data show that for a large proportion of women, job moves that are preceded by non-employment spells – mainly child-bearing or family care – lead to downward occupational mobility. But this is not the case for men (Dex and Bukodi, 2012). We would then be unable to carry out 'like-with-like' analyses had we retained in the data-set details of women's job moves when a period out of employment intervened between the jobs. This focus on the type of job-to-job mobility described above necessarily involves a selection. Obviously it excludes any episodes of job change in an individual's employment history that that did not fulfil this criterion. But it also excludes some individuals completely from the dataset. Women and men who have never worked up to age 34 (less than one per cent of each cohort) are one very small group excluded. It also excludes any individuals who have never experienced job-to-job mobility; that is when job changes were always preceded by a non-employment spell; for this reason, 11 per cent of men and 12 per cent of women in the 1958 cohort were excluded, and 3 per cent of men and 5 per cent of women in the 1970 cohort. These rates of individuals being excluded from the data are reassuringly similar for men and women. Also, the losses are not high. However, the job transitions included in the dataset will come disproportionately from individuals who stayed in the labour market over their early careers, or changed job more frequently. Given that our concern is with the effects of changing labour market conditions on the career chances and risks of the employed, we do not believe that this selection has had a significant negative impact on our research. By excluding job transitions that take place

across a period of un- or non-employment a number of benefits arise; we are able to focus on a simpler, if narrower topic; we are able to produce more meaningful results, albeit on a narrower topic; and we are better able to reveal how women's and men's experiences compare when they make the same sorts of job transitions.

The problem of missing data is also a potentially serious one. Both the NCDS and the BCS70 have suffered considerable attrition of respondents across successive survey sweeps and there is also a non-negligible amount of item non-response. Investigations of the effects of missing data suggest that no major biases have been created and that those that do show up exhibit the same pattern across the two cohorts (Plewis *et al.*, 2004; Hawkes and Plewis, 2006). But other analyses bring out more strongly the fact that non-response is significantly higher for individuals coming from disadvantaged social backgrounds, and especially if they have themselves experienced economic difficulties at some point in their life-course (e.g. Ketende, McDonald and Dex , 2010). It is then plausible to assume that non-random attrition may have some implications for the analyses we conduct. For instance, attrition rates may be higher for respondents with more unstable employment histories. However, we believe that the overall impact on the analyses we present is likely to be small since the proportion of missing data in the case of employment histories (only around 5% in each study) is not large enough to change substantially the average sample means of our key variables.

After accounting for missing cases, missing data items and the selection implicit in a focus on job-to-job transitions, the effective sample sizes for analysis are as follows: for the 1958 cohort, 17054 job transitions from 6174 women, and 14848 job transitions from 6447 men; for the 1970 cohort, 13916 job transitions from 5386 women and 11255 job transitions from 5915 men.

Dependent variables

Since we were interested in examining the chances of moving occupation and up or down the occupational hierarchy we needed to code occupations to a common scale. A number of different generations of official occupation coding schemes have been used to code the occupation data from successive waves of these two cohorts. The only scale we could use to code all the occupations from these multiple waves of data collection, dating back over 30 years, was the UK's Standard Occupational Classification 1990 (SOC90) 3-digit codes. We also needed to construct an occupational scale that ranked occupations in a hierarchy. There are a number of ways and methods to design an occupational ranking schema as reviewed and compared in Bukodi *et al.* (2011). For the analyses described in this paper we use *earnings* as the basis of ranking occupations and follow a method devised in Nickell (1982). The earnings data from the UK's large-scale New Earnings Survey (NES) in 2002 were used to calculate the mean hourly earnings (for full-time employees excluding overtime) for each occupation. We then based our scale on the 77 2-digit SOC90 occupation codes, and ranked these by their mean earnings. Finally, we converted the rank into scores between 1 and 100, which therefore represent relative positions within the occupational distribution (full details are available from authors).

We work with four dependent variables. The first one, job mobility, is defined as the conditional probability of a job change (the variable takes the value of 1 in case of job change, otherwise 0). The second dependent variable, occupational mobility, is defined as the conditional probability of a job change that entails a change in occupation – occupation is measured using SOC90 codes, at the most detailed 3-digit level (the variable takes the value of 1 in case of occupational change, otherwise 0). The third dependent variable, upward occupation mobility, is defined as the conditional probability of an occupational change that

involves moving upwards (=1, otherwise 0) in the occupational rankings (i.e. when the occupational score of the subsequent job is higher than that of the current job based on the scale devised from the 77 SOC90 2-digit codes)[5]. In a similar vein, the fourth dependent variable, downward occupation mobility, is defined as the conditional probability of an occupational change that involves moving down (=1, otherwise 0) in the occupational rankings.

Summaries of cohort members' job and occupational mobility experiences up to their mid-thirties are displayed separately for men and women and for the two cohorts in *Table 1*.

Table 1. Distribution of cohort members by job and occupational mobility experience up to age 34

	Men		Women	
	1958 cohort	1970 cohort	1958 cohort	1970 cohort
Immobile	22.2	13.6	21.4	10.8
Job mobility only	7.4	12.3	6.4	11.7
Lateral occupational mobility only	3.6	3.7	4.3	4.7
Upward mobility only	12.6	20.4	9.6	18.0
Downward mobility only	7.3	8.5	7.1	8.0
Both upward and downward mobility	46.9	41.5	51.2	46.8
Total	100.0	100.0	100.0	100.0
N	6447	5915	6174	5386

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[5] We apply the 'any occupational mobility' approach in this paper, since our previous research (Bukodi and Dex, 2010; Dex and Bukodi, 2012) shows that the effects of individual characteristics on occupational mobility are essentially the same irrespective of whether occupational mobility is defined as 'any occupational mobility' or only 'significant occupational mobility'. Our previous research also shows that 70-75 per cent of the vertical occupational moves are in fact 'significant' moves, resulting in at least 20 per cent upward or downward change in occupational earnings-based scores.

For men and women alike, job moves are more frequent in the 1970 cohort. However, members of the 1958 cohort are somewhat more likely than those in the 1970 cohort to make job changes that entail occupational changes. Also, occupational histories in the 1958 cohort appear to be more unstable than those in the 1970 cohort: a lower proportion of respondents experience upward mobility only and a higher proportion of them have made at least one upward and one downward move up to age 34. These figures may reflect the fact that members of the 1958 cohort developed their early careers in the nineteen eighties, under prolonged adverse labour market conditions.

In *Figures 1.1* and *1.2* we present statistics for cohort members' mobility experiences in relation to labour market conditions. The monthly rates of job and occupational mobility experienced by the combined members of the two cohorts are displayed, covering the period from 1974 to 2004. We also plot the ILO monthly total unemployment rates for Britain on the same graphs. Rates of job mobility and occupational mobility clearly fluctuate with changing labour market conditions: when the unemployment rate is high – or increasing – individuals appear to be *less* likely to change jobs or occupations, or move occupation in an upward or downward direction[6]. The relationship between changing unemployment rates and the rates of job and occupational mobility is markedly similar for men and women. These results for Britain, on the link between labour market conditions and individuals' mobility rates, are in line with those reported for the USA and Germany (Devereux, 2002; Moscarini and Vella, 2008; Buttner *et al.*, 2010).

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[6] The overall decline in mobility rates towards the year 2000 is likely to be the result of the ageing of the cohort members.
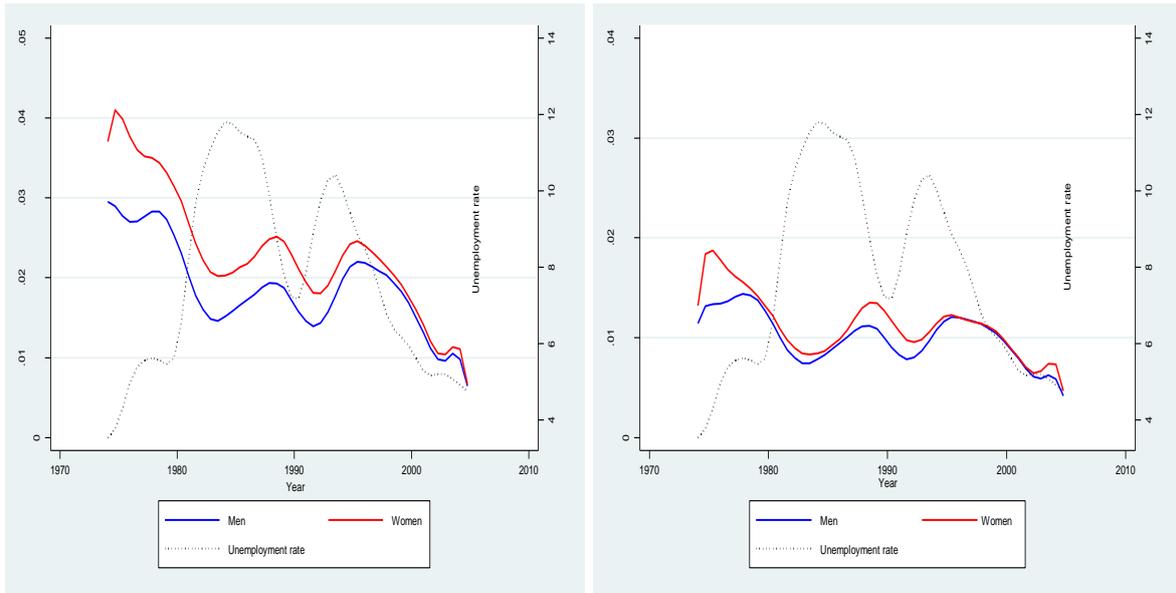
Job mobility   Occupational mobility

Figure 1.1. Monthly rates of job and occupational mobility by year
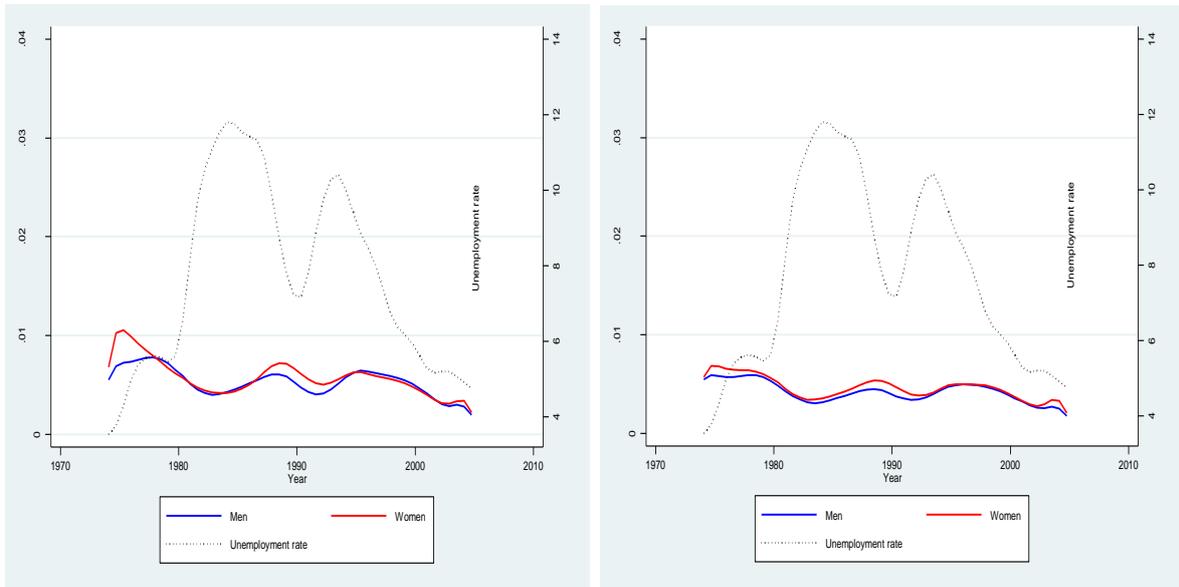
Upward mobility   Downward mobility

Figure 1.2. Monthly rates of upward and downward occupational mobility by year

Modelling job and occupational mobility

In a next step we investigate whether or not the associations between job and occupational mobility and changing labour market conditions seemingly visible in Figures 1 hold up once a wide range of individual characteristics thought to influence individuals' mobility are taken into account. Our decisions about how to model the effects of labour market conditions on individuals' mobility, using data from our two birth cohorts are described below.

We have four dependent variables, and each of these variables is defined as the conditional probability of a change in job or occupation. Four binomial logistic regression models are then applied to model individuals' job and occupational mobility, in which time-dependency is taken into account using linear and quadratic terms for the job duration. Respondents may have more than one job over the period in which we observe their careers. Job durations for the same respondent could be correlated, therefore, since there may be unobserved individual-specific factors that affect the hazard of job and occupational changes. To allow for the dependence between repeated job spells for the same respondent, we work with the following model:

$$logit\left[h_{ij}(t)\right] = \alpha(t) + \beta_1 \mathbf{UR}(t) + \beta_2 \mathbf{Z}_{ij}(t-1) + \alpha_j + \varepsilon_j(t)$$

In this equation $h_{ij}(t)$ is the hazard that a job/occupation change occurs at time t, during episode (job) i, for individual j. Element $\alpha(t)$ represents coefficients for time (in this case the linear and quadratic terms of job duration); β_1 are coefficients for unemployment rates [$\mathbf{UR}$] (that capture time-varying labour market conditions); β_2 are coefficients for time-varying covariates [$\mathbf{Z}$]; α_j is a fixed-effect that represents the time-invariant unobserved characteristics of individual j; $\varepsilon_j(t)$ is a normally distributed error term. By using a fixed effects model which 'differences out' such unobserved heterogeneity between individuals, it

is possible to obtain unbiased estimates of the effects of changing labour market conditions on individuals' careers.

Although the fixed-effects specification removes individual heterogeneity that is time-invariant, time-varying unobserved heterogeneity remains a potential problem. It is plausible that a variety of different life-events might influence an individual to enter a new job, and to do so more than once. It is also possible that many of the factors that might encourage an individual to choose a new job may also be those that lead to upward or downward occupational mobility – such as getting married or having a child. In order to control for these changing factors as far as possible, we add to the regression a range of time-varying explanatory variables that are thought to influence labour market behaviour. We also include year dummies to account for any societal-level factors that are not directly related to economic and labour market cycles, such as deindustrialisation, growing employment flexibility or social policy changes.

One important limitation of the fixed-effects approach is that time-invariant covariates are eliminated from the model. In order to address our second research question, on possible gender differences in the effects of labour market conditions on career mobility, we therefore estimate separate models for men and women.

At first sight, our aim to identify the effects of labour market conditions on mobility is a classical age, period and cohort (APC) problem, where we are interested in the period effects on career mobility. Identification or decomposition of all three APC effects has long been recognised as impossible (Glenn, 2005), since they are linearly dependent. Without identifying all three elements separately, estimates of any of the three effects are likely to contain confounding elements of one or more of the other two. However, the literature offering and debating ways to circumvent the problems, and at least to get closer to

identification, has grown recently (e.g. Winship *et al.*, 2008; Yang *et al.*, 2008). Although our modelling strategy is not driven by addressing the APC identification problems, the approach we take, using fixed-effects models, has eliminated one of the three, cohort, since it is constant. Our model also includes explanatory variables to measure labour market conditions measured at the period level (and not only period dummies), and explanatory variables that are highly correlated with age (but not age itself). This means there is less confounding overall. In the APC literature our model could be classified as being a re-parameterisation, one of the recognised approaches to this problem (see Browning *et al.*, 2012).

Key independent variables

Labour market conditions: We include two variables in our models to measure labour market conditions: the actual *level* of unemployment rate at time t[7] and a binary variable to show the direction of the *change* of the unemployment rate over a 12-month period preceding time t. To construct this latter variable, we averaged the month-to-month changes in the unemployment rate over the past 12-month period. If this average is positive, our change-in-unemployment variable takes the value of 1, indicating a rise in the unemployment rate and worsening labour market conditions; otherwise the variable is set to 0, which we generally refer to as 'improving conditions' (although it also covers stable states). To define unemployment rate, we use the ILO-definition and select total rates across all ages and gender groups.[8] We also considered other macro-economic indicators such as Gross

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[7] We experimented with including a squared term for the unemployment rate in our models, but the effects of this term were insignificant for all four dependent variables.

[8] Consideration was given to using youth unemployment rates. However, the youth unemployment rate statistics for 16-24 year olds were only available for the UK from quarterly dates in the early 1980s onwards, later than were needed for labour market entry of school leavers in the 1958 cohort and not the monthly data we preferred. However, the correlation between youth and total unemployment rates were 0.98 or 0.99 for monthly and quarterly data respectively, over the period for which data for both were available. We also considered using gendered unemployment rates, but again found these to be highly correlated with total rates. Statistics on

Domestic Product (GDP) for our purposes, known to have a relationship with lagged unemployment. However, as argued by Moscarini and Vella (2008), unemployment rates are preferable since they are more likely to be the immediate drivers of workers' career decisions.

Occupational band and employment hours: Our second hypothesis suggests that the effects of changing labour market conditions on individuals' job and occupational mobility may differ by origin occupational level and employment hours. To measure the level of individuals' origin occupations, we use our occupational ranking scores (see above). But instead of including these scores as linear (and quadratic) measures, we created five broad bands, each covering roughly 20 per cent of the distribution of scores. To measure employment hours, we created a dummy variable indicating whether individuals' weekly hours in their current job are part time (=1) or full time (=0).[9]

Controls

Work experience: We include a set of time-varying controls to capture aspects of individuals' work experience gained up to the point of entering their current jobs: linear and squared forms of cumulative amounts of work experience (measured in months) and the percentage of previous labour force experience spent in part-time employment were used.[10]

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vacancies were also not available systematically for Britain for the whole period that our analyses cover. Hence the all-age total monthly unemployment rates were viewed as preferable and adequate for our purposes.

[9] Other time-varying covariates from individuals' job histories that would have been of interest to include in our models are industry sector and training opportunities in jobs held. This information was not collected as part of cohort members' job histories.

[10] In line with standard practice in career mobility research, we omitted age as an explanatory variable to avoid over-identification when various correlated variables are included in the model, as here; namely, cumulative work experience before entering the current job, plus the duration of time individuals spent in their current job, plus year dummies.

Past occupational history: Since previous research (e.g. Connolly and Gregory, 2005) suggests that individuals' mobility chances depend on their past occupational mobility histories, our models incorporate a variable to characterise respondents' time-varying occupational trajectories up to the point of entering their current jobs. Seven categories were distinguished, from stable (no occupational change) to very unstable histories (at least two upward and two downward moves).

Educational qualification: We included a time-varying variable of the highest level of qualification attained, distinguishing the following 5 categories: no qualification or less than O level (sub-secondary), O level or equivalent (lower secondary), A level or equivalent (upper secondary), sub-degree/professional qualification (lower tertiary), and a degree qualification (higher tertiary). Over their early careers, around 44 per cent of the respondents obtained academic or vocational qualifications that led to them having a higher level of educational qualifications.

Partnership status: Previous studies found partnership status (being married) to be an important predictor associated with a low probability of job and occupational change (Evans, 1999; Moscarini and Vella, 2008). We include a 3-category time-varying variable to measure partnership status, distinguishing between the married, the cohabiters and those who do not live in a partnership.

Children: Our models incorporate two time-varying variables to measure family responsibilities: number of children the individual has and a dummy indicating whether the respondent has a child under the age of 5.

Descriptive statistics of the individual-level independent variables and controls can be found in *Appendix, Table A1*.

Results

Do labour market conditions affect job and occupational mobility?

Results for our main focus of interest, the log-odds ratios for the effects of labour market conditions on men's and women's job and occupational mobility, are displayed in *Table 2*. We work with two models: in Model 1 we include the level variable of unemployment rate, whereas in Model 2 we also include the variable on the change in unemployment rate over the past 12-month period. Both models include all independent and control variables listed above.

Clearly, the effects of the actual level of unemployment are strong and systematic: the higher the unemployment rate, the lower the probability of experiencing job mobility and occupational mobility of any kind, especially for women (Model 1). The size of the coefficients suggests that job mobility is affected most by unemployment level; the likelihood of changing jobs is particularly low when the level of unemployment is high. In addition to the actual level of unemployment, changes in unemployment also have significant effects on men's and women's mobility chances and risks (Model 2). When labour market conditions are worsening (the unemployment rate increasing), individuals are less likely than in improving labour market conditions to change jobs or occupations and move either up or down the occupational hierarchy. Overall, these 'change effects' are more pronounced for men than women; and for men, in the case of occupational mobility, the 'level effects' vanish, once the dummy on the change in unemployment is included.

In order to test whether or not the gender differences that show up in Table 2 are statistically significant, we reran the 4 models pooling the data from men and women, but including an interaction term in each case between gender (women=1, men=0) and the two unemployment

variables in the models. The results are in line with those reported in Table 2: With regard to the actual level of unemployment rates, it is evident from the interaction terms that the negative effects are significantly more pronounced for women than men; the only exception is downward mobility. With regard to the change of unemployment rates, worsening conditions were found to be less detrimental solely for women's upward occupational mobility. (Results are available upon request.)

As a robustness check, we re-ran the models using a random-effects rather than fixed-effects approach.[11] The results for the level of unemployment and change in unemployment (from Model 2) from the RE and FE estimations are compared in the *Appendix*, *Table A2*. As can be seen, we can draw essentially the same conclusions from the random-effects models as from the fixed-effects models described above.

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[11] In the random-effects models, in addition to our time-dependent variables, we also included a 7-category variable for parental social class, a scale to measure respondents' cognitive ability around age 10, and a cohort dummy.

Table 2. The effects of level of unemployment and worsening changes in unemployment on men's and women's job and occupational mobility

	Dependent variables			
	Job mobility	Occupational mobility	Upward mobility	Downward mobility
Men				
Model 1				
level of unemployment	-0.038 **	-0.018 *	-0.035 *	-0.017
	[0.0075]	[0.0090]	[0.0150]	[0.0166]
Model 2				
level of unemployment	-0.022 *	-0.003	-0.012	-0.013
	[0.0081]	[0.0152]	[0.0158]	[0.0174]
worsening unemployment	-0.111 **	-0.098 **	-0.148 **	-0.028
	[0.0167]	[0.0223]	[0.0314]	[0.0353]
Women				
Model 1				
level of unemployment	-0.058 **	-0.037 **	-0.050 **	-0.040 *
	[0.0071]	[0.0087]	[0.0155]	[0.0152]
Model 2				
level of unemployment	-0.043 **	-0.027 **	-0.046 **	-0.022
	[0.0078]	[0.0091]	[0.0164]	[0.0181]
worsening unemployment	-0.097 **	-0.065 *	-0.024	-0.119 **
	[0.0161]	[0.0296]	[0.0326]	[0.0363]

Note. Coefficients from fixed-effects logit models. Standard errors are in parenthesis. Models include all other independent variables and controls, see Appendix Tables A4 and A4.

* p < 0.05; ** p < 0.01

In order to illustrate the role of changing labour market conditions on men's and women's mobility patterns, we calculate the predicted probabilities of moving up or down on the occupational ladder. Calculations are presented over the entire range of unemployment rates, and separately for worsening and improving (or stagnant) labour market conditions (*Figures 2 and 3*)[12].

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[12] Other independent and control variables were evaluated at their means.
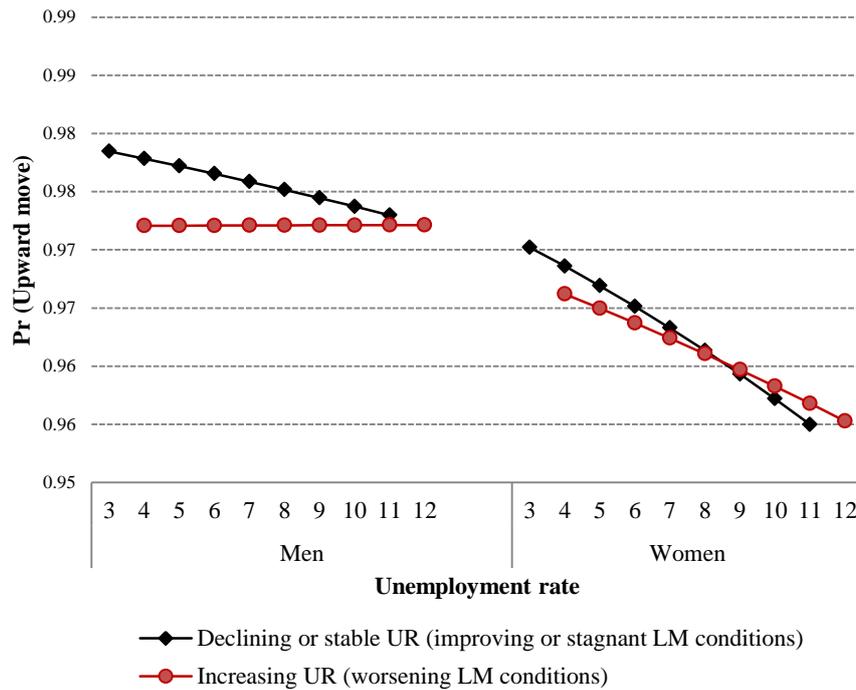
Figure 2. Predicted probabilities of upward occupational mobility by level of and change in unemployment

Note. Models include all the independent and control variables evaluated at their means.

In line with the results reported in Table 2, the predicted probabilities show that, overall, the actual level of unemployment is more consequential for women's than for men's occupational mobility. The slopes of the probabilities are steeper for women than for men. But the direction of changes in unemployment rates appears to be more important for men, indicated by the somewhat wider gaps between the slopes of the probabilities for men than for women. Clearly, men have higher chances of upward occupational mobility than women, especially when the level of unemployment is high, and the labour market is not in a good shape (Figure 2). Gender differences in the probabilities of downward mobility are less apparent. When labour market conditions are worsening, women are less likely than men to experience downward mobility, but under improving labour markets there are no significant gender

differences in the risks of downward moves (Figure 3). In fact, the probability of downward mobility is distinctively high for both men and women when labour market conditions improve and unemployment rates fall to a low level. A possible explanation for this pattern may be that once the economy picks up, workers are more optimistic about their future and less cautious about moving jobs, even in a downward direction – at least in the short run. Also, employers may create more vacancies once the economy starts improving, especially at lower job levels.
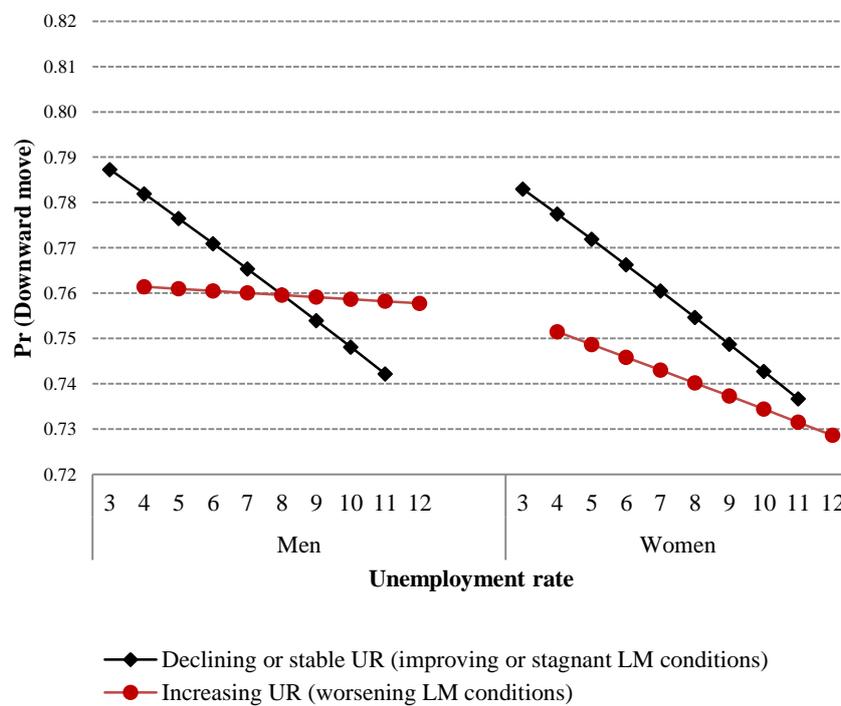

Figure 3. Predicted probabilities of downward occupational mobility by level of and change in unemployment

Note. Models include all the independent and control variables evaluated at their means.

In sum, these predicted probabilities indicate that the gender gaps in occupational mobility chances and risks are widest when levels of unemployment are high and labour market conditions are worsening. Under these circumstances, women are significantly less likely than men to move not only up but also down on the occupational ladder. Women may be more

cautious than men about making significant changes to their occupational status when jobs are scarce. Women are, of course, more likely than men to be found at the lower levels of the occupational hierarchy where upward mobility chances are particularly low during economic downturns. Employers may also be more reluctant to provide training and promotion opportunities to women than to men when the economic outlook is bleak.

As far as our hypotheses are concerned, these results are in line with the first prediction. In general, the probabilities of job and occupational mobility are significantly lower in economically depressed conditions than in more buoyant times. But the findings do not support our expectation that, if workers change occupations in depressed conditions, they tend to move downward. What we find is that both upward and downward occupational mobility are significantly lower in worsening labour market conditions than in improving conditions. Similar results for Britain were reported by Evans (1999).

So far as gender differences are concerned, the findings lend some support to our third hypothesis. The gender gap in occupational mobility chances, especially in upward mobility chances, widens when unemployment rates are high: Women's ability to advance their careers in such conditions is less than men's. But this does not mean that men's mobility patterns are not affected by labour market conditions. For men, what appears to be particularly important is not the actual level of unemployment, but whether labour market conditions are improving or worsening. When the labour market outlook is bleak, the likelihood of men experiencing job and occupational mobility, especially in an upward direction, is rather low.

Do the effects of labour market conditions differ by occupational band and part-time employment?

As our second hypothesis suggests, it is conceivable that the effects of changing labour market conditions on mobility chances and risks varies by occupational band and employment hours, and differently so for men and women. In order to test this hypothesis, we have two further models. In Model 3 we include interactions between the set of dummies for the five broad occupational bands and our two unemployment variables; and, in a similar vein, Model 4 includes interactions between the part-time hours dummy and the unemployment variables (*Tables 3* and *4*).

Before turning to the interactions, we briefly summarise the results on the main effects of occupational band and working part time (see *Appendix*, *Tables A3* and *A4*)[13]. The main effects of broad occupational bands on mobility patterns are systematic for both men and women: the higher the band, the lower the likelihood of making a job or occupational change. The only exception is with downward mobility, in which case, working in high-level occupations increases the risk (floor effects). These results are in line with those presented in previous research (e.g. Sicherman and Galor, 1990; Harper, 1995). The results are also consistent with it being harder to change jobs between occupations that have higher skill levels and more occupation-specific skill requirements, than when the skills are at lower levels, and more of a general, than an occupation-specific nature.

The main effect for working part-time hours increases the probabilities of job and occupational changes for both men and women. Overall, the effects of working part-time hours seem to be more pronounced for men than women.

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[13] For the main effects of the two unemployment variables, see Table 2.

As *Table 3* shows, the mobility chances and risks of men and women in differing occupational bands depend on the actual level of unemployment, although they appear to be independent of the direction of changes in unemployment. Men in the bottom band of the occupational hierarchy (e.g. bus drivers, labourers or barmen) are significantly less likely than those in the middle band (e.g. carpenters, machine operators, accounts clerks) to change jobs and occupations, especially in an upward direction, when the level of unemployment is high.[14] But men's mobility chances in the top occupational band (e.g. for lawyers, financial professionals, production managers) seem to be less affected by unemployment rates: in comparison with men in middling occupations, they are more likely to experience job and occupational mobility when unemployment rates are high. For women, the pattern is similar to that for men, insofar as those in the bottom and next-to-the-bottom occupation bands (e.g. sales assistants, cleaners, nursing assistants, administrative assistants) are affected most by the ups and downs in labour market conditions. The higher the unemployment level, the lower the likelihood of women in these less advantaged occupational positions moving to jobs that involve either upward or downward mobility – at least in comparison with those in middling occupations (e.g. flight attendants, community and youth workers). However, the pattern for women is different to that for men, insofar as for women, there are no significant differences in the effects of unemployment levels between middling and top occupations.

The interactions between part-time employment and the two unemployment variables are presented in Table 4. Male part-timers' mobility chances and risks seem to be unaffected by either the level of or the change in unemployment rates. But for women, a consistent pattern

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[14] This is indicated by the significant and negative coefficients for the interaction terms between the 'bottom level' category and level of unemployment (upper panel, Table 3.1). For instance, in the case of job mobility, the negative coefficient for the interaction term suggests that the positive effect of being found in the bottom occupational category 'becomes less and less positive' at higher levels of unemployment.

shows up. Part-timers are less likely than full-timers to change jobs and occupations in worsening labour market conditions.

Table 3.1 Interaction effects between occupation bands and unemployment rates, men

	Dependent variables			
	Job mobility	Occupational mobility	Upward mobility	Downward mobility
Model 3				
Occupation band*level of unemployment				
bottom band	-0.032 **	-0.023 *	-0.029 *	-0.035
	[0.0067]	[0.0093]	[0.0135]	[0.0249]
2nd	0.008	0.020	0.008	-0.011
	[0.0063]	[0.0115]	[0.0131]	[0.0149]
3rd (ref.)				
4th	0.011	0.016	0.016	0.045 **
	[0.0068]	[0.0094]	[0.0161]	[0.0144]
top band	0.031 **	0.034 **	0.086 **	0.079 **
	[0.0077]	[0.0106]	[0.0223]	[0.0151]
Occupation band*worsening unemployment				
bottom band	0.062	0.076	0.016	0.164
	[0.0420]	[0.0441]	[0.0610]	[0.1156]
2nd	-0.106	-0.054	-0.150	0.069
	[0.0604]	[0.0408]	[0.0901]	[0.0682]
3rd (ref.)				
4th	-0.035	-0.039	-0.014	-0.052
	[0.0323]	[0.0440]	[0.0722]	[0.0641]
top band	-0.018	0.026	-0.136	-0.076
	[0.0357]	[0.0485]	[0.1017]	[0.0661]

Note. Coefficients from fixed-effects logit models. Standard errors are in parenthesis. Models include all other independent variables and controls, see Appendix Table A3.

* $p < 0.05$; ** $p < 0.01$

Table 3.2 Interaction effects between occupation bands and unemployment rates, women

	Job mobility		Occupation mobility	Upward mobility		Downward mobility	
			Dependent variables				
Model 3							
Occupation band*level of unemployment							
bottom band	-0.044	**	-0.001	-0.037	*	-0.008	
	[0.0064]		[0.0090]	[0.0148]		[0.0169]	
2nd	-0.030	**	-0.012	-0.041	*	-0.073	**
	[0.0070]		[0.0097]	[0.0159]		[0.0159]	
3rd (ref.)							
4th	0.007		0.030	0.002		0.026	
	[0.0078]		[0.0215]	[0.0218]		[0.0167]	
top band	-0.001		0.021	-0.017		0.029	
	[0.0094]		[0.0132]	[0.0361]		[0.0185]	
Occupation band*worsening unemployment							
bottom band	0.058		0.128	0.111		0.126	
	[0.0316]		[0.0713]	[0.0655]		[0.0764]	
2nd	-0.070		-0.063	-0.018		-0.025	
	[0.0428]		[0.0447]	[0.0705]		[0.0701]	
3rd (ref.)							
4th	0.018		-0.018	0.008		-0.049	
	[0.0358]		[0.0514]	[0.0959]		[0.0709]	
top band	0.051		-0.022	-0.037		-0.168	
	[0.0418]		[0.0585]	[0.1603]		[0.0981]	

Note. Coefficients from fixed-effects logit models. Standard errors are in parenthesis. Models include all other independent variables and controls, see Appendix Table A4.

* p < 0.05; ** p < 0.01

Table 4. Interaction effects between part-time job and unemployment rates

	Dependent variables			
	Job mobility	Occupation mobility	Upward mobility	Downward mobility
Men				
Model 4				
Part-time job*level	-0.048	-0.026	-0.046	0.017
of unemployment	[0.0334]	[0.0176]	[0.0248]	[0.0348]
Part-time job*	0.073	0.044	-0.075	0.051
worsening unemployment	[0.0603]	[0.0802]	[0.1096]	[0.1545]
Women				
Model 4				
Part-time job*level	-0.002	-0.010	-0.022	-0.002
of unemployment	[0.0059]	[0.0084]	[0.0124]	[0.0149]
Part-time job*	-0.190 **	-0.156 **	-0.176 **	-0.145 *
worsening unemployment	[0.0255]	[0.0360]	[0.0515]	[0.0619]

Note. Coefficients from fixed-effects logit models. Standard errors are in parenthesis. Models include all other independent variables and controls, see Appendix Table A3.

* p < 0.05; ** p < 0.01

As regards our second hypothesis, we did find evidence that the effects of changing labour market conditions on mobility chances and risks differ by individuals' occupational band and employment hours, largely in the expected way. Clearly, workers at the bottom end of the occupational hierarchy suffer most when unemployment rates are high: they are much less likely than their more advantaged counterparts to change jobs and occupations, especially in an upward direction. As hypothesised, women in the bottom occupation bands appear to be hit more severely than their male counterparts by bleak labour markets: they are less likely to experience job and occupational mobility when unemployment rates are high. Also, when labour market conditions are worsening, the probabilities of female part-timers changing jobs or occupations are distinctively low.

The effects of controls

Turning to the control variables that we include in our analyses, their effects are, by and large, in line with those reported in previous studies in the field (e.g. Harper, 1995; Blossfeld *et al.*, 2005; Longhi and Brynin, 2010; Parrado *at al.*, 2007) (see *Appendix*, *Tables A3* and *A4*).

In the case of duration in current job, negative dependence prevails: the longer the job spell, the lower the probability of a job or an occupational move. However, the significant quadratic terms for job duration indicates that after an initial drop in mobility rates, these effects level off.[15]

Regarding cumulative work experience, chances of job and occupational mobility in either direction are higher over the first phase of employment careers: The more work experience men and women accumulate, the lower the probability of their moving jobs or occupations. But the significant quadratic terms of employment experience indicate that these effects level out. In contrast with men, and perhaps somewhat surprisingly, women who have spent a higher proportion of their employment careers in part-time jobs are not at greater risk of experiencing job and occupational mobility.

Occupational mobility history between labour market entry and current job affects the chances and the risks of further occupational movements for both genders, offering clear evidence for path dependence. Individuals who experienced more occupational shifts in the past are less likely to move between jobs and occupations than those who have stable occupational careers.

As expected, educational qualifications have a systematic effect on individuals' job and

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[15] The only case where the pattern is different is the upward mobility for women: the longer the job spell, the higher the probability of women's moving up on the occupational ladder, though this effect levels off after an initial jump in rates.

occupational mobility. The higher the educational level attained, the more likely men and women are to change jobs or move up on the occupational ladder. But, interestingly, higher levels of education do not appear to decrease the risk of downward mobility after controlling for a number of other individual characteristics.

Men living in cohabitation are more likely than unpartnered men to be occupationally mobile. But if they 'settle down' in a marriage, their mobility rates fall. Women, unlike men, are most likely to change jobs if they are married; however, in most cases, their job changes do not involve occupational changes. The more children a woman has, the more likely she is to change jobs and to move down the occupational hierarchy, and the less likely she is to experience an upward move. The presence of a pre-school child increases the likelihood of women's job mobility, but decreases the likelihood of occupational mobility, especially in an upward direction. For men, only the number of children has a systematic effect: the more children a man has, the less likely he is to experience job and occupational mobility.

Conclusions

In this paper we have investigated the effects of varying labour market conditions on individuals' career mobility in Britain in order to examine gender differences in job and occupational mobility in early careers. Our leading hypothesis, based on both demand-side and supply-side theories, was that rates of job and occupational mobility are likely to be lower when labour market conditions are depressed than when they are buoyant. We also hypothesised that, if anything, workers would move downwards during economic downturns. We reasoned that this might be because – as the Reder-hypothesis or job competition model predicts – employers raise their job requirements in deteriorating economic conditions, and this means that workers with relatively few career resources, such as formal qualifications,

occupation-related skills or work experience, are unable to move to better jobs. Moreover, past research suggests that employers tend to hoard labour in economic recessions, and one implication of this might be lower rates of job and occupational mobility. We also argued that based on the micro-economic job search theory, we should propose a similar hypothesis. The costs of search for a job increase and the potential benefits decline in depressed conditions – chiefly because it takes longer to find a suitable job – probably leading to reduced rates of job and occupational mobility.

The analyses, which were based on men's and women's job-to-job transitions in two of the British birth cohort studies, clearly showed that the probabilities of job and occupational mobility were significantly lower when labour markets were depressed than in better times. Labour market fluctuations affected job mobility and upward occupational mobility most. In worsening labour market conditions workers were much less likely than in buoyant times to change jobs, and they had much lower chances to move up the occupational hierarchy. Although to a lesser extent, the risks of downward mobility were also found to vary over the business cycle in much the same way as the chances of upward mobility. In other words, our findings suggest that in times of job scarcity workers tend to 'stay put', not making changes to their job or occupational status. These results ran contrary to the hypothesis that, if anything, workers would move downwards during labour market downturns.

As hypothesised, we found evidence that labour market conditions affect workers differently according to their amounts of career resources. Individuals in the lower regions of the occupational hierarchy and those in part-time jobs were found to be hit most severely by worsening labour market conditions: they were less likely than their more advantaged counterparts to change jobs and occupation, especially in an upward direction.

We started out predicting that women's career moves would be affected more than men's by

changing labour market conditions for two reasons: first, because women are more likely than men to be found in the lower tier of the job and occupational hierarchy; second, in times of high unemployment, employers might be more reluctant to provide training opportunities to their female than to their male workers – especially if women were at the bottom end of the occupational hierarchy. Our results from the experiences of these two cohorts confirmed these predictions. Overall, women's job and occupational moves were more affected than men's by labour market fluctuations. When unemployment rates were high, women were less likely than men to change jobs and to move either upwards or downwards on the occupational ladder. The gender gap in both upward and downward occupational mobility probabilities is arguably the widest when levels of unemployment were high. Under these circumstances, female workers suffered a disadvantage compared with men in that they were much less likely than male workers to improve their occupational positions. However, women were also less likely than men to move down the occupational hierarchy in depressed labour markets, which is to their advantage. When labour market conditions were improving and unemployment rates were falling, both men and women experienced heightened rates of job and occupational mobility – interestingly, downward mobility, in particular. The chances of upward mobility also increased in improving conditions, but significantly more for men than for women.

It became clear from our analyses that for capturing the condition of labour markets at any point in time we should work with multiple indicators. Our results suggest that both the level of unemployment and the direction of the annual change in unemployment affected workers' job and occupational mobility, albeit somewhat differently for men and women. Male workers' careers seem to be more responsive to changes in unemployment, while female workers' careers appears to be more influenced by the actual level of unemployment at the time. This is evidenced, for instance, in the finding that men are more likely than women to move up on the career ladder when labour market conditions are on an improving track,

indicated by falling unemployment rates over the previous 12-month period.

It is interesting to see that our findings on the effects of labour market conditions on workers' career mobility in Britain are similar, where they overlap, to those reported for the USA (Devereux, 2002), Germany (Buttner *et al.*, 2010) and Italy (Barone *et al.*, 2011), despite the cross-country differences in labour market institutions. Evidently, more systematic investigations are needed. Additional insights would emerge were future research to investigate the cross-country differences in the importance of macro-economic and labour market conditions on job and occupational mobility, the mediating role of social policy factors, or the spill-over effects to other life-domains such as family dynamics. As earlier authors have noted, the extent to which intra-generational career mobility is affected by varying labour market conditions also has relevance to much wider sociological topics; for example, to questions of how to measure the extent of change in intergenerational social mobility and social exclusion across generations and over the life-course, as well as to economists' interests in income growth and resource allocation.

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Appendix

Table A1. Descriptive statistics – individual independent variables

	Men		Women	
	Mean/%	S.D.	Mean/%	S.D.
Job duration				
duration in months	48.37	47.19	40.22	41.52
Cumulative work experience				
experience in months	47.10	52.93	46.96	50.43
Cumulative part-time work experience	1.02	6.61	6.89	19.51
Occupational history				
only upward	20.49		19.66	
stable	37.48		36.81	
only downward	10.93		11.17	
1 upward - 1 downward	11.26		11.37	
2 upward - 1 downward	7.16		6.98	
1 upward - 2 downward	4.00		4.39	
2 upward - 2 downward	8.68		9.62	
Education				
sub-secondary	34.29		31.69	
lower secondary	29.72		34.11	
upper secondary	16.43		13.22	
lower tertiary	9.46		10.72	
higher tertiary	10.09		10.26	
Occupational level				
bottom level	13.78		30.63	
2nd level	20.23		20.01	
3rd level	25.69		19.54	
4th level	22.21		18.08	
top level	18.10		11.75	
Part-time job (dummy)	1.83		21.98	
Partnership status				
not living in partnership	52.56		43.90	
living in cohabitation	15.45		18.35	
living in marriage	31.99		37.75	
Children				
number of children	0.39	0.79	0.49	0.87
child aged less than 5	0.17	0.37	0.17	0.38
N of person-months	2220906		1924642	

Table A2. The effects of unemployment rates on job and occupational mobility: fixed-effects and random-effects models compared

	Job mobility		Occupational mobility		Upward mobility		Downward mobility	
	Dependent variables							
Men								
Fixed-effects models								
level of unemployment	-0.022	*	-0.003		-0.012		-0.013	
increasing unemployment	-0.111	**	-0.098	**	-0.148	**	-0.028	
Random-effects models								
level of unemployment	-0.020	*	-0.001		-0.013		-0.014	
increasing unemployment	-0.129	**	-0.123	**	-0.181	**	-0.089	
Women								
Fixed-effects models								
level of unemployment	-0.043	**	-0.027	**	-0.046	**	-0.022	
increasing unemployment	-0.097	**	-0.065	**	-0.024		-0.119	**
Random-effects models								
level of unemployment	-0.042	**	-0.026	**	-0.047	**	-0.021	
increasing unemployment	-0.111	**	-0.092	**	-0.069		-0.136	**

Note. Models also include all the independent and control variables.

$*p < 0.05$; $**p < 0.01$

	Job mobility		Occupational mobility		Upward mobility		Downward mobility	
	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2	Model 1	Model 2
Current job duration								
duration in months	-0.009 **	-0.009 **	-0.024 **	-0.023 **	-0.012 **	-0.012 **	-0.012 **	-0.012 **
duration in months^2	0.007 **	0.007 **	0.007 **	0.007 **	0.001 *	0.001 *	0.004 **	0.004 **
Cumulative work experience								
experience in months	0.009 **	0.009 **	0.002 **	0.002 *	0.011 **	0.011 **	0.020 **	0.020 **
experience in months^2	-0.001 **	-0.001 **	-0.004 **	-0.004 **	-0.008 **	-0.008 **	-0.009 **	-0.009 **
Cumulative part-time work experience	0.004 **	0.004 **	0.004 **	0.004 **	0.010 **	0.010 **	0.003	0.003
Occupational history								
only upward (ref.)								
stable	0.878 **	0.871 **	1.334 **	1.327 **	2.780 **	2.771 **	-0.160 **	-0.162 **
only downward	-0.167 **	-0.167 **	-0.102 *	-0.102 *	2.969 **	2.971 **	-3.828 **	-3.828 **
1 upward - 1 downward	-0.473 **	-0.472 **	-0.812 **	-0.810 **	0.704 **	0.707 **	-3.330 **	-3.330 **
2 upward - 1 downward	-0.816 **	-0.815 **	-1.355 **	-1.353 **	-0.912 **	-0.909 **	-2.911 **	-2.910 **
1 upward - 2 downward	-0.898 **	-0.897 **	-1.422 **	-1.420 **	1.092 **	1.095 **	-5.247 **	-5.246 **
2 upward - 2 downward	-1.365 **	-1.363 **	-2.121 **	-2.118 **	-0.840 **	-0.836 **	-5.167 **	-5.166 **
Occupational level								
bottom level	0.313 **	0.313 **	0.264 **	0.264 **	1.190 **	1.189 **	-1.832 **	-1.832 **
2nd level	0.104 **	0.104 **	0.218 **	0.218 **	0.917 **	0.917 **	-0.395 **	-0.395 **
3rd level (ref.)								
4th level	-0.210 **	-0.211 **	-0.211 **	-0.212 **	-0.639 **	-0.639 **	0.098 **	0.098 **
top level	-0.433 **	-0.434 **	-0.479 **	-0.479 **	-2.316 **	-2.319 **	0.795 **	0.795 **
Part-time job (=1)	0.054 **	0.054 **	0.105 **	0.105 **	0.046	0.045	0.118 **	0.118 **

	(1)		(2)		(3)		(4)		(5)		(6)		(7)		(8)	
Education																
sub-secondary (ref.)																
lower secondary	0.054		0.053		0.077		0.076		0.039		0.036		0.193	*	0.193	*
upper secondary	0.384	**	0.384	**	0.202	**	0.202	**	0.329	**	0.331	**	-0.031		-0.031	
lower tertiary	0.366	**	0.362	**	0.339	**	0.337	**	0.776	**	0.772	**	-0.056		-0.056	
higher tertiary	0.339	**	0.332	**	0.528	**	0.524	**	1.387	**	1.379	**	-0.094		-0.095	
Partnership status																
not living in partnership (ref.)																
living in cohabitation	0.024		0.023		0.092	**	0.091	**	0.129	**	0.128	**	0.081	*	0.080	*
living in marriage	-0.109	**	-0.111	**	-0.046		-0.048		0.015		0.011		-0.054		-0.055	
Children																
number of children	-0.072	**	-0.072	**	-0.065	**	-0.065	**	-0.067	*	-0.068	*	-0.136	**	-0.136	**
child aged less than 5	0.030		0.030		0.011		0.011		0.043		0.043		0.024		0.024	
N events	44243		44243		22942		22942		12047		12047		9464		9464	

Note. Models also include the two unemployment variables and year-dummies.

*p < 0.05; **p < 0.01

Table A4. Effects of individual characteristics on job and occupational mobility, women

	Job mobility				Occupational mobility				Upward mobility				Downward mobility			
	Model 1		Model 2		Model 1		Model 2		Model 1		Model 2		Model 1		Model 2	
Current job duration																
duration in months	-0.003	**	-0.003	**	-0.014	**	-0.014	**	0.002	*	0.002	*	-0.003	*	-0.002	*
duration in months^2	0.006	**	0.006	**	0.006	**	0.006	**	-0.002	*	-0.002	*	0.003	**	0.003	**
Cumulative work experience																
experience in months	0.009	**	0.009	**	0.006	**	0.006	**	0.019	**	0.019	**	0.025	**	0.025	**
experience in months^2	-0.001	**	-0.001	**	-0.004	**	-0.004	**	-0.009	**	-0.009	**	-0.010	**	-0.010	**
Cumulative part-time work experience	-0.003		-0.002		-0.001		-0.001		0.000		0.000		-0.001		-0.001	
Occupational history																
only upward (ref.)																
stable	0.813	**	0.806	**	1.215	**	1.210	**	2.483	**	2.481	**	-0.232	**	-0.247	**
only downward	0.006		0.006		-0.014		-0.014		2.886	**	2.886	**	-3.915	**	-3.915	**
1 upward - 1 downward	-0.346	**	-0.344	**	-0.670	**	-0.669	**	0.502	**	0.502	**	-3.084	**	-3.082	**
2 upward - 1 downward	-0.635	**	-0.634	**	-1.151	**	-1.150	**	-0.920	**	-0.920	**	-2.612	**	-2.609	**
1 upward - 2 downward	-0.635	**	-0.634	**	-1.178	**	-1.176	**	1.031	**	1.031	**	-5.079	**	-5.073	**
2 upward - 2 downward	-1.163	**	-1.161	**	-1.908	**	-1.906	**	-0.938	**	-0.937	**	-4.982	**	-4.973	**
Occupational levels																
bottom level	0.276	**	0.277	**	0.267	**	0.267	**	1.366	**	1.366	**	-1.296	**	-1.294	**
2nd level	0.145	**	0.144	**	0.244	**	0.243	**	1.045	**	1.045	**	-0.315	**	-0.317	**
3rd level (ref.)																
4th level	-0.159	**	-0.160	**	-0.273	**	-0.274	**	-0.951	**	-0.951	**	0.154	**	0.154	**
top level	-0.304	**	-0.305	**	-0.331	**	-0.331	**	-2.699	**	-2.700	**	0.739	**	0.740	**
Part-time job (=1)	0.061	**	0.061	**	0.052	*	0.052	*	-0.057		-0.057		0.074		0.075	

Education

sub-secondary (ref.)

lower secondary	0.123	**	0.123	**	0.219	**	0.219	**	0.230	**	0.230	**	0.119		0.127	
upper secondary	0.279	**	0.281	**	0.302	**	0.304	**	0.506	**	0.506	**	0.041		0.057	
lower tertiary	0.237	**	0.234	**	0.325	**	0.324	**	0.584	**	0.584	**	0.108		0.114	
higher tertiary	0.332	**	0.328	**	0.828	**	0.827	**	1.772	**	1.771	**	0.226		0.234	

Partnership status

not living in partnership (ref.)

living in cohabitation	0.096	**	0.096	**	0.017		0.016		-0.033		-0.033		0.115	**	0.114	**
living in marriage	0.102	**	0.100	**	-0.125	**	-0.126	**	-0.291	**	-0.291	**	0.071		0.068	

Children

number of children	0.032	*	0.032	*	0.058	**	0.058	**	-0.113	**	-0.112	**	0.142	**	0.151	**
child aged less than 5	0.094	**	0.094	**	-0.067	*	-0.068	*	-0.165	**	-0.166	**	0.075		0.066	

N events	45681	45681	22475	22475	11447	11447	9079	9079

Note. Models also include the two unemployment variables and year-dummies.

*p < 0.05; **p < 0.01